

Workplace Design

In designing the interior of the Space Shuttle Orbiter, NASA encountered a number of considerations that demanded a different approach from earlier spacecraft design: the Orbiter would be the largest spacecraft ever built and would carry more people than prior spacecraft, missions would involve more motion within and outside the spacecraft, the type of work would differ from earlier



experience and crews would include persons of both sexes, many of them non-pilots and most of a different age bracket than earlier astronauts. These and other factors affected design criteria for crew clothing, equipment, workplaces and living quarters. Johnson Space Center (JSC) felt that the many new design considerations demanded a broader data base on anthropometry, the study of the size, shape and motion characteristics of the human body.

JSC therefore initiated a project to assemble the information available worldwide and produce a centralized collection of anthropometric knowledge. The result was the three-volume *Anthropometric Source Book*, compiled and edited under JSC contract by Webb Associates, Yellow Springs, Ohio. Designed primarily for use by NASA, the military services and aerospace contractors, the book was also intended to help non-aerospace engineers, architects and others engaged in design of clothing, equipment and workplaces. The work has won considerable acclaim as an important addition to Human Factors Engineering and it has spawned a number of non-aerospace spinoff applications.

An example is its use by Eastman Kodak Company, Rochester, New York, whose Human Factors Section of the Health Environment Laboratory has several sets of the *Anthropometric Source Book*. They use the data

frequently for such purposes as designing protective clothing, studying placement of controls on Kodak EKTRAPRINT copiers/duplicators, or designing workplaces. The latter use is exemplified by the company's application of the NASA data to design of efficient, productive and comfortable workplaces for employees in the Rochester (New York) processing laboratories. In designing these workplaces, where employees process disc film negatives before sending them to the printing area, Kodak's Human Factors Section used the source book to determine such dimensions as leg space, work surface height and thickness, employee reach distances, proper height for the computer terminal screen, seat height and knee space. The type of workplace that emerged from the design effort is shown in the accompanying photo.